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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,868	06/07/2005	Yoshiaki Hasegawa	OKUDP0116U'S	8395
51921	7590	10/15/2007	EXAMINER	
MARK D. SARALINO (MEI) RENNER, OTTO, BOISSELLE & SKLAR, LLP 1621 EUCLID AVENUE 19TH FLOOR CLEVELAND, OH 44115			INGHAM, JOHN C	
ART UNIT	PAPER NUMBER			
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/537,868	<b>Applicant(s)</b> HASEGAWA ET AL.
	<b>Examiner</b> John C. Ingham	<b>Art Unit</b> 2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 09 July 2007.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,4-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 12-14 and 16-19 is/are allowed.
- 6) Claim(s) 1 and 4-11 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 June 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

1. In view of the Pre-Appeal Brief Request filed on 9 July 2007, PROSECUTION IS HEREBY REOPENED. New rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Wael M Fahmy/

Supervisory Patent Examiner, Art Unit 2814.

2. The amendments to the claims filed 7 June 2007 have been entered and the objection to claim 13 has been withdrawn.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishikawa (US 6,741,623).

5. Regarding claims 1, 4, and 7-10, Ishikawa discloses in Fig 11 a semiconductor light-emitting element comprising: a first group III-V compound semiconductor (204, n-type AlGaN); a current confining layer (205: 0.1 μm GaN, and 206: p-type 0.2μm GaAIN), which is made of a second group III-V compound semiconductor that has grown on a selected surface area of the first group III-V compound semiconductor and which has a striped opening (S) extending along the length of a resonant cavity; and a third group III-V compound semiconductor (207, n-type GaN), which covers the surface of the first group III-V compound semiconductor that is exposed through the striped opening and the surface of the current confining layer, wherein the current confining layer (205, 206) has two overhanging portions (above areas V) that overhang toward the striped opening, wherein a gap (V) is provided between each of the two overhanging portions of the current confining layer and a part of the surface of the first group III-V compound semiconductor (204), the gap not being filled by the third group III-V compound semiconductor (207), wherein the gap has a height of 0.1μm (thickness of layer 205) and a width of 5μm (col 19 ln 45).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa. Ishikawa discloses the element of claim 1, but does not specify wherein a portion of the third group III-V compound semiconductor, which contacts with the surface of the first group III-V compound semiconductor through the striped opening, has a width of 0.5 to 3  $\mu\text{m}$ . Instead, Ishikawa recites that the width of the third semiconductor is 0.2  $\mu\text{m}$ . However, the width of the third semiconductor would have been obvious to an ordinary artisan practicing the invention because, absent evidence of disclosure of

criticality for the range giving unexpected results, it is not inventive to discover optimal or workable ranges by routine experimentation. *In re Aller*, 220 F. 2d 454, 105 USPQ 233, 235 (CCPA 1955). Furthermore, the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. See *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ 2d 1934, 1936 (Fed. Cir. 1990).

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa and applicant's admitted prior art, Mitsuo (10-0256647), referred to as AAPA. Ishikawa discloses the element of claim 1, but does not specify wherein the first group III-V compound semiconductor has a multilayer structure including an active layer. AAPA teaches that below a current confinement layer, a multilayer structure including an active layer, can be placed to provide excellent current-optical output characteristics (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of AAPA on the element of claim 6 in order to provide better current-optical output characteristics.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa and Kimura (US 2004/0258120). Ishikawa discloses the element of claim 9, but does not specify wherein the electrical conductivity of the second group III-V compound semiconductor is n-type. Kimura teaches in Fig 1A that by providing a current confinement layer of an n-type material (and having clad layers of p-type material), a

light emitting element can be formed which operates at high power without kinks (¶11). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Kimura on the element of Ishikawa in order to produce an element that operates at high power.

***Allowable Subject Matter***

11. Claims 12-14 and 16-19 are allowed.
12. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose the method recited in claim 12, wherein a second group III-V semiconductor is grown over the entire surface except a portion covered with the masking layer, thereby forming a current confining layer that has a striped opening defined by the masking layer and overhanging portions that overhang the striped opening; and growing a third group III-V semiconductor to cover the surface of the first group III-V semiconductor, which is exposed through the striped opening, and the surface of the current confining layer, including providing a gap between the first semiconductor and each of the overhanging portions, the gap not being filled by the third semiconductor.

***Response to Arguments***

13. Applicant's arguments, see page 4, filed 9 July 2007, with respect to the rejection(s) of claim(s) 1 and 12 under 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ishikawa.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Ingham whose telephone number is (571) 272-8793. The examiner can normally be reached on M-F, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John C Ingham  
Examiner  
Art Unit 2814

/J. C. I./